

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1-56. (Canceled)

57. (Previously Presented) A composition comprising:

a mutated *E. coli* glucose/galactose binding protein having at least two amino acid substitutions in the amino acid sequence of SEQ ID NO:1, the at least two amino acid substitutions being selected from the group consisting of a cysteine at position 112 and a serine at position 238, a cysteine at position 149 and a serine at position 238, a cysteine at position 152 and a serine at position 213, a cysteine at position 213 and a cysteine at position 238, a cysteine at position 149 and an arginine at position 213, a cysteine at position 149 and a cysteine at position 213, a cysteine at position 149 and a threonine at position 213, a cysteine at position 149 and a leucine at position 213, a cysteine at position 149 and a tyrosine at position 213, a cysteine at position 149 and a serine at position 213, a cysteine at position 149 and an asparagine at position 223, a cysteine at position 149 and a cysteine at position 238, a cysteine at position 149 and a serine at position 256, a cysteine at position 149 and an arginine at position 256, a cysteine at position 152 and an arginine at position 213, a cysteine at position 152 and an asparagine at position 223, a cysteine at position 213 and a cysteine at position 255.

58. (Original) The composition of claim 57 wherein said mutated glucose/galactose binding protein additionally comprises at least one histidine tag.

59. (Original) The composition of claim 57 wherein said mutated glucose/galactose binding protein additionally comprises at least one reporter group.

60. (Original) The composition of claim 59 wherein said reporter group is a luminescent label.

61. (Original) The composition of claim 60 wherein said luminescent label has an excitation wavelength of more than about 600 nanometers.
62. (Original) The composition of claim 60 wherein said luminescent label has an emission wavelength of more than about 600 nanometers.
63. (Original) The composition of claim 60 wherein said luminescent label is covalently coupled to said mutated glucose/galactose binding protein by reacting said mutated binding protein and at least one member selected from the group consisting of fluorescein, coumarins, rhodamines, 5-TMR1A (tetramethylrhodamine-5-iodoacetamide), (9-(2(or4)-(N-(2-maleimidyethyl)-sulfonamidyl)-4(or 2)-sulfohenyl)-2,3,6,7,12,13,16,17-octahydro-(1H,5H,11H,15H-xantheno(2,3,4-ij:5,6,7-i'j')diquinolizin-18-ium salt) (Texas Red®), 2-(5-(1-(6-(N-(2-maleimidyethyl)-amino)-6-oxohexyl)-1,3-dihydro-3,3-dimethyl-5-sulfo-2H-indol-2-ylidene)-1,3-propyldienyl)-1-ethyl-3,3-dimethyl-5-sulfo-3H-indolium salt (CyTM3), N-((2-iodoacetoxy)ethyl)-N-methyl)amino-7-nitrobenzoxadiazole (IANBD), 6-acryloyl-2-dimethylaminonaphthalene (acrylodan), pyrene, 6-amino-2,3-dihydro-2-(2-((iodoacetyl)amino)ethyl)-1,3-dioxo-1H-benz(de)isoquinoline-5,8-disulfonic acid salt (lucifer yellow), 2-(5-(1-(6-(N-(2-maleimidyethyl)-amino)-6-oxohexyl)-1,3-dihydro-3,3-dimethyl-5-sulfo-2H-indol-2-ylidene)-1,3-pentadienyl)-1-ethyl-3,3-dimethyl-5-sulfo-3H-indolium salt (CyTM5), 4-(5-(4-dimethylaminophenyl)oxazol-2-yl)phenyl-N- (2-bromoacetamidoethyl)sulfonamide (Dapoxyl® (2-bromoacetamidoethyl)sulfonamide)), (N- (4,4-difluoro-1,3,5,7-tetramethyl- 4-bora-3a,4a-diaza-s-indacene- 2-yl)iodoacetamide (BODIPY® 507/545 IA), N-(4,4-difluoro-5,7-diphenyl- 4-bora-3a,4a-diaza-s-indacene- 3-propionyl)- N'-iodoacetylenediamine (BODIPY 530/550 IA), 5-((((2-iodoacetyl)amino)ethyl)amino)naphthalene-1-sulfonic acid (1,5-IAEDANS), and carboxy-X-rhodamine, 5/6-iodoacetamide (XRIA 5,6).
- 64.-77. (Canceled)

78. (Previously Presented) The composition of claim 57, wherein said mutated glucose/galactose binding protein additionally comprises two luminescent reporter groups covalently coupled to said binding protein.

79. (Previously Presented) The composition of claim 78, wherein said two luminescent reporter groups are both N-((2-iodoacetoxy)ethyl)-N-methylamino-7-nitrobenzoxadiazole (IANBD), or wherein one of said luminescent reporter groups is N-((2-iodoacetoxy)ethyl)-N-methylamino-7-nitrobenzoxadiazole (IANBD) and the other said luminescent reporter group is (9-(2(or4)-(N-(2-maleimidyethyl)-sulfonamidyl)-4(or 2)-sulfophenyl)-2,3,6,7,12,13,16,17-octahydro-(1H,5H,11H,15H-xantheno(2,3,4-ij:5,6,7-i'j')diquinolizin-18-ium salt) (Texas Red®).

80.-83. (Canceled)